DOCUMENT RESUME

ED 024 543 24 RE 001 489

By- Otto, Wayne; Barrett, Thomas C.

Two Studies of Children's Ability to Formulate and State a Literal Main Idea in Reading. Report from the Reading Project.

Wisconsin Univ., Madison. Research and Development Center for Cognitive Learning.
Spons Agency- Office of Education (DHEW), Washington, D.C. Bureau of Research.
Report No- WRDCCL-TR-57
Bureau No- BR-5-0216
Pub Date Jun 68
Contract- OEC-5-10-154
Note- 32p.
EDRS Price MF-$0.25 HC-$1.70
Descriptors- Concept Formation, *Elementary School Students, *Reading Comprehension, *Reading Processes, *Reading Research, Reading Skills

The two reported studies examined children's approaches to and success in conceptualizing a literal main idea in reading. The first study examined elementary pupils' ability to formulate a main idea for brief, carefully controlled paragraphs written with one specific but unstated main idea. The study revealed that although subjects' grade placement and paragraph readability were critical factors in determining response quality, the children's main idea responses were generally of low quality. In the second study second- and fifth-grade students were asked to formulate hypotheses about the main idea after each successive sentence of a paragraph was presented. This study revealed that relatively few subjects were successful in formulating a high level main idea statement and that children may have no clear conception of what a main idea ought to be. It was suggested that systematic teaching designed to channel pupils' energies in formulating "ain idea statements would yield worthwhile results. Background information, methodology employed, and paragraphs used in the study are included. (RT)

EDO 24543

BR-5-0216
PF-24

TWO STUDIES OF CHILDREN'S ABILITY TO FORMULATE AND STATE A LITERAL MAIN IDEA IN READING

WISCONSIN RESEARCH AND DEVELOPMENT
CENTER FOR
COGNITIVE LEARNING

Technical Report No. 57

TWO STUDIES OF CHILDREN'S ABILITY TO FORMULATE AND STATE A LITERAL MAIN IDEA IN READING

By Wayne Otto and Thomas C. Barrett

Report from the Reading Project
Wayne Otto and Karl R. Koenke, Principal Investigators

Wisconsin Research and Development
Center for Cognitive Learning
and the
Laboratory for Research in Basic Skills
The University of Wisconsin
Madison, Wisconsin

June 1968

U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

The research reported herein was performed pursuant to a contract with the United States Office of Education, Department of Health, Education, and Welfare, under the provisions of the Cooperative Research Program.

Center No. C-03 / Contract OE 5-10-154

PREFACE

This technical report is a joint product of the reading project of the Research and Development Center for Cognitive Learning and the Laboratory for Research in Basic Skills of the University of Wisconsin. The reading project is within Program 2, Processes and Programs of Instruction, at the Center. The purpose of the program is to improve educational practice through the application of knowledge to instructional problems within disciplines, such as reading.

This report deals with two studies which investigate the ability of young children to formulate and state the main idea in a paragraph. Both studies deal with this general problem. Study I examines this ability across grade levels (grades 1–6); Study II is more explicit and deals with the emergence of this ability in a sentence by sentence presentation of each paragraph for children of Grades 2 and 5.

This report is a good example of the research being done on instructional processes at the University of Wisconsin. It demonstrates methodological processes for investigating instructional problems. It presents descriptive information about school children and how they respond in to important instructional tasks. And, it illustrates the caliber of research which can cooperatively be undertaken by two research groups at the University of Wisconsin.

Thomas A. Romberg
Director of Program 2

CONTENTS

		Page
	List of Tables and Figures	vii
	Abstract	ix
I.	Introduction	1
	Background of the Studies	1
	Preparation for the Specific Studies	2
II.	Study I	4
	Method	4
	Results	7
	Discussion	8
III.	Study II	10
	Method	10
	Results	11
	Discussion	15
	Appendixes	16
	References	25

ACKNOWLEDGMENTS

A number of people have contributed materially to the planning, implementation and reporting of the studies reported here.

Professor Theodore Harris provided the initial impetus and thoughtful guidance through all of the planning and execution stages. Professors John Kean, James Macdonald and G. Lawrence Rarick contributed their time, ideas, and guidance as the studies were designed and piloted. Their contribution has been substantial and they are responsible for much of whatever strengths these studies have.

Several research assistants also participated actively and productively in the planning and execution of the studies. Specifically, Jenny Armstrong handled much of the data analysis, Karl Koenke coordinated the data gathering and was mainly responsible for the main idea rating scale, Judy Stein and Bob Jerrolds gathered and organized data, and Susan Tatham put together the first draft of this report. Elvira Benter, secretary to the Laboratory for Research in Basic Skills, kept the entire operation moving smoothly.

The elementary school children who participated as subjects were drawn from area schools. The cooperation of central office and building personnel in making subjects available and in assisting with the implementation of data gathering efforts is gratefully acknowledged.

Support for two research assistants was provided by the Research Committee of the University of Wisconsin Graduate School. This assistance, too, is gratefully acknowledged.

LIST OF TABLES AND FIGURES

Table		Page
1	Analysis of Variance of Main Idea Statements for Two Types of Paragraphs, Two Styles of Paragraphs, and Six Grade Levels of Subjects	8
2	Mean Ratings of Main Idea Statements Across Grade Levels Irrespective of Type of Style of Paragraphs Read	8
3	Frequency of Mean Response Rating by Sex and Paragraph Type for Primary and Intermediate Subjects	9
4	Intercorrelations of Judges Ratings	11
5	Recurring Response Patterns Across Grades Two and Five	12
6	Across Grade Frequency of Response Patterns with One or More Category Six Ratings	12
7	Percent of Response Patterns with a Category of Response (C6) in Four Descriptive Categories	13
8	Recurring Response Patterns by Grade	13
9	Within Grade Frequency of Response Patterns with One or More Category Six Ratings	14
10	Percent of Response Patterns with a Category 6 Response (C6) in Four Descriptive Categories by Grade Level	15

Figure		
1	Mean Rating Given to Each Response: Second Grade	14
2	Mean Rating Given to Each Response: Fifth Grade	14

ABSTRACT

The two studies reported here were the first in a series devoted to the examination of children's approaches to and success in conceptualizing a literal main idea in reading. Because existing studies include neither concise methodological guidelines nor definitive descriptive data regarding children's ability to synthesize and state a main idea, it was necessary to focus simultaneously upon the development of an operation approach— e.g., operational definition of main idea, appropriate reading materials, directions to subjects, a method for evaluating responses— and the collection of descriptive data. A substantial portion of this report, then, is devoted to methodological matters.

The first study was devoted to the examination of elementary pupils' ability to formulate a main idea for brief, carefully controlled paragraphs written with one specific but unstated main idea. The salient finding was that although subjects' grade placement and paragraph readability were critical factors in determining response quality, the children's main idea responses were generally of low quality as evaluated by the rating scale developed for use in the study. In the second study, subjects were asked to formulate hypotheses about the main idea after each successive sentence of a paragraph was presented. The purpose was to examine response patterns in the hope that the descriptive information yielded would lead to clarification of the cognitive processes involved. On the basis of the pattern analysis, four descriptive categories of patterns were identified. The categories are discussed in terms of tentative implications for teaching and research.

I
INTRODUCTION

The general purpose of the two studies reported here was to establish a framework for the further study of children's approaches to the task of conceptualizing the main idea in reading. The focus was upon (a) methodological concerns—i.e., devising and testing materials, procedures and scaling methods appropriate for use with elementary school children—and (b) descriptive data—i.e., analyses of children's actual responses when they tackled the task of conceptualizing the main ideas inherent in short, contrived paragraphs.

BACKGROUND OF THE STUDIES

Research on children's ability to read for main ideas has generally demonstrated the difficulty of this task. Alderman (1926) found that the lack of ability to select central thoughts of a paragraph and organize them logically according to the writer's purpose was a major factor in preventing children from scoring "up to a standard" in comprehension. Keneally (1939) gave a series of controlled passages to sixth graders and found that while 65% could supply minor ideas in an outline, only 10% could write original headlines or topics for paragraphs. These results can be questioned on the basis of the adequacy of the preliminary directions and the criteria used in evaluating responses, but the existence of such questions points up some of the difficulties in conducting research in the area.

Thorndike (1917) analyzed the results of a test given to 200 sixth graders who were directed to read a "simple paragraph" and respond to questions following it. The first question, which asked for the "general topic" of the passage, elicited diverse and often irrelevant responses. The investigator concluded that some words in the directions were overpotent, leading subjects to focus on irrelevant details of the task. Furthermore, the appropriateness of the passage with respect to its vocabulary and structure is highly questionable, as is the assumption that a clear central thought was offered. The questions raised by the study point directly to the need to provide children with unambiguous directions and appropriate materials.

In an effort to improve reading tests in which ability to conceptualize a main idea was ignored or inadequately handled, Woody (1923) constructed a series of paragraphs graduated in difficulty. Each one was followed by five statements in which a thought or partial thought mentioned in the paragraph was included. By taking statements almost directly from the text, Woody hoped to test the subjects' ability to weigh the worth of one statement against the other. The test was administered to 1,500 children in the fourth through eighth grades, and on the basis of his data Woody concluded that ability to select a main idea is not well developed in children, although it does increase across the grades. One confounding factor in his study was the quality of the distractors for each item. Apparently it was difficult to select four equally good statements from the short paragraphs used.

Attempts were made in two studies to determine the skills involved in reading for the main idea. McCullough's (1957) subjects were first, second, and fourth graders to whom she administered the Ginn readiness tests appropriate to each grade level. Each test included two questions regarding the main idea of the materials. Correlations of the different aspects of comprehension showed a positive relationship among them, the common factor being the reader's "fact-getting" ability. Broening (1941) analyzed reading abilities of a group of secondary school students and concluded that ability to grasp the main idea in reading is based upon the following three skills: (a) noting key words and topic sentence clues; (b) differentiating between main points and supporting details; and (c) knowing the meaning of relational words such as "but," "therefore," and "consequently." The report does not make clear how the author determined

the presence of these skills. How, for example, were key words defined? Perhaps key words for one reader are not the same for another.

Taken together, the studies that have dealt with the ability to locate main ideas in reading present a clouded and confused picture of the exact nature of the task required of the subjects. Methodology has generally been questionable due to overly complex directions, inappropriate materials, and/or an undefined rationale for including and evaluating several diverse tasks. There is a need for research in which (a) the specific behaviors sought are clearly defined, (b) materials that encourage these behaviors are provided, and (c) appropriate methods for evaluating the responses obtained are utilized.

Furthermore, it seems reasonable to expect the responses of children at different grade levels to vary in the degree to which they approximate the necessary synthesis required for an adequate main idea statement. In view of the present lack of knowledge about children's actual performance, there is no empirical basis for devising instruction to develop skill in this area. Thus, the feeling was that qualitative analyses of children's main idea responses might reveal developmental patterns in their cognitive approaches to the task. Assuming such patterns do exist, by knowing them we would be in a better position to suggest improvements in instructional procedures at specific grade levels.

With these things in mind, the present investigators undertook the two exploratory studies reported here. The preliminary plan for the studies follows; specifics are given later, in the report of each study.

The decision was to focus in Study I upon the description and qualitative analysis of children's responses when they were required to formulate their own main ideas for a selection. The expectation was that analysis across grade levels would yield developmental information with implications for devising instructional programs. An additional problem for this study was the preparation of (a) carefully controlled materials that elicit unambiguous main ideas, (b) unambiguous directions for tackling the task, and (c) an instrument for scaling the diverse responses anticipated.

The intent was to use the methods and materials developed in Study I to examine more closely, in Study II, the specific point at which a reader is able to formulate a main idea. Here the procedure would be to present materials of paragraph length a line at a time and to have the subjects verbalize their emering main idea formulation at the end of each line.

PREPARATION FOR THE SPECIFIC STUDIES

Lack of precedents made it necessary to develop and try out materials and procedures before they were used in data gathering situations.

The first step was to develop an operational definition of "main idea" that would provide (a) a consensual framework for the implementation of the studies, (b) guidelines with respect to structure of the experimental materials to be developed, and (c) guidelines for the development of a scale to be used in scoring responses. In view of these requirements, it was finally agreed that an adequate main idea statement would include two elements: (a) reference to a general topic, as illustrated in the statement "Birds build nests," and (b) a restriction placed on the general topic by reference to the specific content of the passage, e.g., "Birds build nests / in different places." Consequently, a combination of general topic and specific referent was considered a correct response when children's main idea statements were subsequently evaluated. This operational definition is the referent when the term "main idea" is used in the discussion that follows.

The second step was to construct reading materials, appropriate for use at the first- through sixth-grade levels, that contain an implicit but unambiguous main idea. Expository rather than narrative passages were constructed because pilot studies showed that narrative materials tended to evoke divergent rather than convergent responses. To further encourage convergent responding, the decision was to write short paragraphs with a single unequivocal central thought. As they were constructed, the paragraphs were piloted with adult subjects to get assurance that each one did, indeed, contain just one main idea. Three experimental paragraphs were finally produced.

The subject matter of the paragraphs was drawn from the common curriculum area of "nature" to assure reasonable appeal across grade levels. The procedure was to start with an acceptable main idea statement and then to write a paragraph of four simple sentences, each of which would contain an element of the main idea, in which the main idea was implicit but not stated. The first version of each paragraph was written at the first-grade difficulty level and subsequent versions were written at increasingly more difficult levels, from second- through sixth-grade. The Spache Readability Formula (1953) was used in writing the materials for grades 1–3, and the Dale-Chall Readability Formula (1948) was used for Grades 4–6. Sentence complexity was manipulated by increasing the use of phrases and clauses at the upper levels. The materials were pilot tested several

times with children at different grade levels. As expected, some of the words in the first-grade paragraphs seemed to pose special difficulties despite the control imposed by the readability formula. In these cases, easier words were substituted. At the conclusion of the pilot testing, the materials appeared to be graded appropriately for each level and to satisfy the requirements of the operational controls.

Contrary to the practice in much of the existing research, where the procedure was to have subjects select responses in a multiple-choice situation, the fact that each paragraph contained a main idea that was implicit but not stated required that the subjects formulate their own main idea statement. The feeling was that this requirement would not only eliminate the possibility of guessing but also yield more information about children's behavior as they attempt to formulate a main idea.

The third step was to devise a method for scoring the responses for purposes of description and analysis. The approach was to develop a scale that could be used to place responses into descriptive categories in order to quantify response quality. Initially an attempt was made to categorize responses gathered in pilot studies on the basis of response generality. The result was a scale that comprised three categories: (1) responses that were too general, (2) responses that were too specific, and (3) responses that appropriately combined the two elements of the main idea. It soon became evident, however, that within each of these categories the responses were not homogeneous and that further subdivisions were required. After several revisions, a scale with seven categories— from "no response" at Level 0 to "one main idea element correct" at Level 4, to "both elements correct" at Level 6— was devised. Using this final scale, independent judges were able to categorize all of the responses with a fair degree of agreement.

The final step was to produce a set of directions that would (a) provide sufficient information to enable each subject to understand the exact nature of the task, (b) provide no information that would amount to training for the specific task at hand, and (c) be reasonably succinct. First, a pilot study was conducted to find out what children actually thought when they were asked to find the main idea of a passage. The diversity of responses obtained underscored the fact that most children do not have a clear conception of what a main idea is or how to go about finding one. Specifically, the use of the term "main idea" seemed to impose a rigid set approach to the task for many children. Therefore, the term was completely eliminated from the directions and materials presented to the subjects. After some further piloting, five sets of directions which varied in length and amount of information provided were devised and tested. An analysis of the responses evoked by each set of directions led to acceptance of the shortest, most concise set. Furthermore, it seemed clear that a brief warmup task for establishing rapport with each subject before the directions were given would be desirable. The warmup task selected, after several possibilities were piloted, was one in which the subject was asked to compose and read four short simple sentences. A serendipitous side effect was that this introduced the subject to the idea of responding in sentences to a group of related sentences.

Thus, the paragraphs, directions, and scoring scale were devised, tested, and revised in view of the constraints imposed by the operational definition of main idea and feedback from pilot testing. More specific details are given where appropriate in the following reports of the two studies.

II
STUDY I

The general purpose of Study I was to examine the ability of pupils in the latter part of Grades 1–6 to synthesize and state the main idea or brief, carefully controlled paragraphs which were written with one specific but implied main idea. More specifically, the seven hypotheses that follow were tested.

H_1 Subjects' main idea response ratings do not differ for paragraphs written at a basal level (Type II) and at grade level (Type I).

H_2 Subjects' main idea response ratings do not differ for paragraphs written with general (Style A) and specific referents (Style B).

H_3 Subjects' main idea response ratings do not differ by grade level.

H_4 No interaction between type and style of paragraphs is reflected by main idea response ratings.

H_5 No interaction between the type of paragraph and grade level is reflected by main idea response ratings.

H_6 No interaction between the style of paragraph and grade level is reflected by main idea response ratings.

H_7 No interaction among type of paragraph, style of paragraph, and grade level is reflected by main idea response ratings.

METHOD

Subjects

Two hundred eighty-eight children from Grades 1–6 in an urban Wisconsin school system were chosen to serve as subjects. The sample was drawn from three schools located in diverse but representative socioeconomic areas of the city.

Initially, 75 children from each grade level were designated at random. The appropriate classroom teachers were then asked to identify those children who, in their judgment, could read a sample test selection. The assumption was that classroom teachers would be reasonably accurate in making such judgments regarding their pupils' reading ability. From this pool of pupils who were expected to have no difficulty with the mechanics of reading, 24 boys and 24 girls from each grade level were chosen at random to participate in the study.

Materials

Paragraphs. When an extensive search failed to yield published materials that met the criterion of well-structured paragraphs containing one implicit main idea, the decision was made to construct paragraphs. The basic problem then was to provide an appropriate reading task for first- through sixth-grade subjects. To accomplish this and to permit subsequent comparisons of responses across grade levels, the procedure was to establish general content and a specific main idea for base level, i.e. first-grade, paragraphs and then to manipulate readability level across grades by application of existing readability formulas. Support for the notion that a single main idea would be appropriate for all subjects was derived from pilot studies in which it was clear that upper grade children (1) had difficulty in synthesizing the elements required for a simple main idea statement, and (2) made no systematic attempt to go beyond the literal statement of main ideas.

The approach, then, was to devise main ideas that could be (1) expressed in first-grade vocabulary, and (2) developed in a series of four comparable and related, but independent, sentences, four sentences having been found to be adequate for the development of a simple main idea. First, main ideas were formulated from the general area of "nature," a sufficiently universal curriculum-interest area to insure at least a base level of meaningful vocabulary among first graders; and eventually three main idea statements were selected: (A) Animals help the farmer in different ways; (B) Birds build nests

in different places; (C) Animals use claws for different things. Second, the operational decision was to work with a structural formula that prescribed that four subjects of the same general classification—one for each sentence—be combined with predicates involving different tasks or functions.

Each paragraph was initially developed at the first-grade readability level in accord with the following guidelines: (1) In line with the accepted operational definition of the main idea, each sentence provided information about a subject performing an act (the general topic) and about the specific nature of the action (the restrictive element). Thus, the main idea "Birds build nests in different places" was developed in four sentences, each of which included a reference to birds as the subject and to a specific place where birds build nests. (2) Each sentence was independent except for pronoun antecedents. (3) Each sentence contained a single idea that contributed to the main idea.

Because the degree to which children are required to synthesize is apt to vary in classroom materials, the decision was to consider the effect of two constructions of the subjective element of the sentences used. Accordingly, alternate forms of each sentence—designated Style A and Style B in the study—were written. In Style A, the subject of each sentence in a paragraph was the name of the general class being discussed, so synthesis was required only by the predicate element. In Style B, the subject of each sentence was the name of a specific member of the class being discussed, so both the subject and predicate elements required synthesis. Development of the main idea "Birds build nests in different places" with Style A and Style B sentences is illustrated in the following schema.

Once the base, or first-grade, paragraphs were written, the sentences in each paragraph were expanded in terms of vocabulary difficulty and/or sentence length to bring the readability level up to subsequent grade levels, but every attempt was made to keep the kernal thought of each sentence intact. The Spache Readability Formula (1953) for grades 1–3 and the Dale-Chall Readability Formula (1948) for grades 4–6 provided guidelines for controlling readability. Due to limitations of the formulae, however, it was necessary to impose additional controls. Wherever possible, for example, words from the Stone List (1957) were used for the primary grades; but when adherence to the list was not practicable, phonetically regular words were used. Furthermore, care was taken to keep sentence length within reasonable limits. Finally, linguistic structure was arbitrarily regulated across grades by expanding the sentences with additional phrases and clauses. The procedure was arbitrary because the existing formulae make no provision for the control of this stylistic variable. The structure of the test paragraphs is illustrated by the following schema for Paragraph C, which was essentially identical to the other paragraphs except for specific sentence order.

	Grade Level					
Sentence	1	2	3	4	5	6
1	P	P	C	C	C	C
2	P	P	P	PP	CP	CP
3	P	PP	PP	PP	PP	CP
4	P	PP	PP	C	C	C

The first grade paragraph comprised four simple sentences with no more than a single phrase (P) as a modifier; and at subsequent

STYLE A

Subject elements			Predicate elements
Concept given	Some birds ----------	(Example 1)	build nests under a roof.
	Many birds ----------	(Example 2)	like nests in trees.
	Some birds ----------	(Example 3)	even make nests in tall grass.
	A few birds ----------	(Example 4)	make nests inside wood fence posts.

STYLE B

Subject elements			Predicate elements
(Example 1)	Robins ----------	(Example 1)	may build nests under a roof.
(Example 2)	Bluejays ----------	(Example 2)	like nests in trees.
(Example 3)	Ducks ----------	(Example 3)	make nests in tall grass.
(Example 4)	Woodpeckers ----------	(Example 4)	make nests inside wood fence posts.

grade levels additional modifying phrases (P) and dependent clauses (C) were added as shown in the schema.

Because there was no basis for predicting how much the readability controls would affect the subjects' ability to recognize and formulate the main idea of each paragraph, the decision was made to have subjects at each grade level read either base level, first-grade (Type II) paragraphs or paragraphs written for their grade level (Type I). The strategy, then, was to compare the responses to base level and to grade level paragraphs in order to determine whether the readability level of the paragraphs had a significant impact upon success in formulating a literal main idea statement.

All materials were written in an expository style, for pilot studies had indicated that narrative materials evoked divergent rather than the desired convergent responses. The actual paragraphs written are given in Appendix A.

Response Scale. As already pointed out, the final scale employed for rating main idea responses was developed after a number of pilot scales had been tried and found to be inadequate. The final version, too, was tried out in a pilot study, and there was consensus among the investigators that it was adequate for the present research task. The final seven point scale included the categories given in the schema that follows:

Scale Value	Category Description
6	Both elements correctly stated.*
5	One element correctly stated, the other too generally or too specifically stated. e.g. Where birds like to build nests. How different animals help the farmer. How animals use their claws. What animals use their claws for. Robins, bluejays, ducks, and woodpeckers build nests in different places. Horses, dogs, cats, and cows help the farmer in different ways. Lions, tigers, bears, and cats use their claws for different things.
4	One element correctly stated. e.g. Animals that help the farmer on the farm. Animals put nests in different places. Animals use claws.
3	Irrelevant or incorrect material plus one element correctly stated OR one element correctly stated and the other too general or specific OR both elements correctly stated. e.g. How birds make nests. All the animals help the farmer in the summertime. How animals do and do not help the farmer. Where most birds build nests.
2	One or both elements too generally stated. e.g. Birds or Nests. Animals or Claws. About animals in the woods. Where birds live. Animals on the farm and what they do.
1	One or both elements too generally or specifically stated plus irrelevant or incorrect material OR one or both elements too specifically stated OR only irrelevant or incorrect material. e.g. Animals have sharp claws. Birds hide their nests. Reread paragraph or a single sentence. How safe the farmer keeps the farm.
0	No response.

* Synonyms of the verb and of the adjective in the final prepositional phrase are acceptable.

Procedure

Directions. Pilot studies revealed the need for a brief warmup task to permit the establishment of rapport between examiner and subject and to establish a set among the subjects to respond in complete sentences. The warmup task was simply to compose and read back four simple sentences. See Appendix B for the actual directions.

The test directions required the subject to read a paragraph silently while thinking about "what all the sentences together say," a phrase intended to direct him toward a synthesis of all the elements present rather than selection of a single specific thought. The subject was permitted to ask for any words which he did not know. Then he was told to "make up just one sentence in your own words that says what all the sentences tell you." The directions were partially repeated between paragraphs (see Appendix B).

Testing. Within each grade, equal numbers of boys and girls were assigned to read paragraphs of each type and style. Each subject read three test paragraphs, randomly ordered, of a single type and style. Three graduate students, each an active participant in the prior pilot studies and the production of materials, served as examiners. One examiner worked in each of the three schools from which subjects were selected.

The 288 subjects were tested individually in a private room provided by the school. A testing session began with a warmup task, followed by oral directions given by the examiner. Upon completion of the first paragraph, the subject was asked for his response to the main idea task. The response was written down verbatim by the examiner on a specially prepared answer form (see Appendix C). The examiner accepted what the subject said without comment unless there was need for clarification of the referent given— e.g., "What do you mean by 'they'?" The procedure for reading the next two paragraphs was identical. Each paragraph was completed before going on to the next one. The entire task took approximately eight minutes.

Scoring Responses. Each subject's main idea responses were coded and typed on master sheets to eliminate possible bias in judging. Four judges, each of whom had had experience in developing and working with the Response Scale, scored the 864 responses independently. If at least two judges did not agree, the responses were returned for reconsideration and rescaling by each judge. Final interjudge agreement was .79, which was considered adequate for the requirements of the study.

The mean of the 12 scale values given to the three responses by four judges comprised the subject's final score. That is, each of the four judges rated each subject's response to Paragraphs A, B, and C, and the mean of the resultant 12 ratings was the subject's score. This mean score was used in the analyses of the data.

Design and Analysis of the Data

A 2 x 2 x 6 completely crossed analysis of variance design, which contained 24 cells with 12 subjects in each cell, was used in the study. The three independent variables were: (1) Type of paragraph, where Type I was written at grade level and Type II was written at first-grade level in difficulty; (2) Style of paragraph, where Style A required synthesis of the predicate only and Style B required synthesis of both the subject and predicate; and (3) Grade level of the subjects. Although equal numbers of boys and girls served as subjects, sex was not considered as an independent variable in the analysis for two reasons: first, preliminary investigations revealed no systematic sex differences in responses; and, second, there was little promise of differential prescriptions by sex if a difference were to be found. The soundness of this decision is demonstrated in the discussion of results.

The dependent variable was the response rating for the main idea statements of each subject on a scale that ranged from 0–6.

RESULTS

On the basis of the analysis of variance summarized in Table 1 there was reason to reject Hypotheses 1— that there would be no differences due to paragraph type— and 3— that there would be no differences attributable to subject's grade placement; but Hypothesis 2— that there would be no differences due to paragraph style— was accepted.

Hypothesis 1 was rejected because significant differences were found when the mean ratings of main idea statements produced by subjects who read Type I paragraphs were compared with the mean ratings of statements by subjects who read Type II paragraphs across Style and Grade Level. Type I paragraphs were those written at each of the six grade levels according to the Spache and Dale-Chall Readability Formulas, while the Type II paragraphs were written at first-grade level or base level according to the Spache formula. Subjects who read base level paragraphs (mean = 3.8) produced main idea statements that were rated higher than those produced by subjects who read grade level paragraphs (mean = 3.3).

Table 1

Analysis of Variance of Main Idea Statements for Two Types of Paragraphs, Two Styles of Paragraphs, and Six Grade Levels of Subjects

Source of Variation	df	MS	F
Type	1	17.552812	14.04*
Style	1	2.257812	1.81
Grades	5	16.546451	13.23*
Type x Style	1	1.039201	< 1.00
Type x Grades	5	.891729	< 1.00
Style x Grades	5	2.535063	2.02
Type x Style x Grade	5	.336285	< 1.00
Error	264	1.249069	

* $p < .05$

In the case of Hypothesis 3, a significant difference in mean ratings of main idea statements was found across the six grade levels when Type and Style of paragraphs were not considered. As shown in Table 2, there was a consistent increase in the mean ratings of main ideas given by subjects in Grades 1–6. Scheffé post hoc tests revealed that with the exception of the fourth- and fifth-grade and fifth- and sixth-grade comparisons, the differences between all other grade level means were significant at the .05 level.

Table 2

Mean Ratings of Main Idea Statements Across Grade Levels Irrespective of Type or Style of Paragraphs Read (N = 48 at each grade)

	Grade Levels					
	1	2	3	4	5	6
Mean Ratings	2.71	3.12	3.52	3.96	4.05	4.20

Hypothesis 2 was accepted because there was no significant relationship between the style of the paragraph and the mean rating of the main idea statements. In other words, the subjects' ability to formulate the main idea of a paragraph was not affected by the generality or specificity of the subjects of specific sentences. This was true across Grade Levels and across Types of paragraphs.

Hypotheses 4–7 dealt with the two-way interactions of Type x Style, Type x Grades, and Style x Grades and the three-way interaction of Type x Style x Grades inherent in the design. As shown in Table 1, none of these interactions was found to be significant. In other words, there was no significant relationship between the mean ratings of main idea statements and combinations of Type and Style of paragraphs, Type of paragraphs and Grade, Style of paragraphs and Grade, or Type and Style of paragraphs and Grade.

The data in Table 3 are offered for descriptive purposes. Response frequencies for the seven categories of the rating scale are given by grade level blocks, paragraph type, and sex. The lack of a systematic sex difference is clear, which supports the earlier decision not to consider sex in the analysis of variance. The shift toward higher response-category values with base level (Type II) paragraphs is also clear. Most interesting is the shift toward higher response-category values from primary to intermediate grades. This is apparent with both base level (Type II) and grade level (Type I) paragraphs, which seems to suggest that the adequacy of main idea responses is not simply tied to the readability level of materials.

DISCUSSION

The central purpose of Study I was to examine the ability of pupils in the latter part of Grades 1–6 to synthesize and state the main ideas of brief, carefully controlled paragraphs which were written with one specific but implied main idea. Two types and two styles of paragraphs were employed for this purpose. Before presenting the conclusions and implications of the study, it seems appropriate to discuss some of the basic limitations inherent in the study itself.

An important limitation derives from the fact that inherent in the operational definition of a main idea in this study were the assumptions that (a) the optimal main idea statement is a sentence, not a topic or phrase; (b) the optimal main idea statement includes the general topic of the passage and the specific restrictions of the passage; and (c) the general topic portion of the main idea statement is more important than the specific portion of the main idea statement. These assumptions were implicit in a number of judgments made by the investigators. The accepted definition also influenced the development of the main idea rating scale utilized in the study. For example, the general topic portion of the main idea statement was deemed to be more important than the specific portion of the main idea statement. In other words, the investigators made this value judgment which,

Table 3
Frequency of Mean Response Ratings by Sex and Paragraph Type for Primary and Intermediate Subjects

			Response Category						
			0	1	2	3	4	5	6
Primary (Grades 1–3)	Type I	Boys	-	10	6	11	6	4	0
		Girls	-	10	10	11	4	-	-
	Type II	Boys	-	4	8	10	10	3	-
		Girls	-	5	12	9	7	3	-
Intermediate (Grades 4–6)	Type I	Boys	-	2	6	14	7	5	1
		Girls	-	2	4	11	12	7	1
	Type II	Boys	-	3	4	3	16	11	1
		Girls	-	1	3	4	15	10	1

in turn, influenced the magnitude of the rating that any one main idea statement received. Finally, the paragraphs constructed for the investigation were carefully controlled in terms of content, readability and conceptual structure, and length. The obvious limitation is that the paragraphs were not necessarily representative of reading materials generally available to children. Whether generally acceptable "representative" materials can ever be found is, of course, a moot question.

With these limitations in mind several conclusions and implications can be drawn from the results of the investigation.

1. Since the mean ratings of the main idea statements were significantly higher when base level paragraphs (Type II) rather than at grade level paragraphs (Type I) were used across grade levels, it would seem that, in general, the easier the materials are in terms of readability the more adequate children's main idea statements will be. In other words, the shorter the sentences and the easier the words in a selection, the less energy the child has to exert in decoding words and deriving literal meanings and the more energy he can exert in synthesizing the ideas in a selection and inferring the main idea. The implication seems clear: instructional programs designed to teach children to formulate main ideas should employ very easy materials.

2. The significant differences among grades in mean ratings of main idea statements and the fact that the mean ratings consistently increased in magnitude from Grade 1 through Grade 6 suggests that the ability to formulate main idea statements is developmental in nature. However, the facts that the practical differences in mean ratings were not greater than they were from grade to grade, and that even at the sixth-grade level the mean rating was not particularly high in terms of the scale used, raise questions about the effectiveness of the instruction devoted to the development of this basic comprehension ability during the elementary school years. It would seem, therefore, that pupils should be given practice in inferring main ideas beginning in the primary grades and that such practice should be continued over a period of years.

3. Since the style of the paragraphs utilized did not significantly influence the mean ratings of main idea statements made by subjects in this investigation while the level of difficulty of the paragraphs did, there is some evidence that the semantic structure of materials may not be as crucial to pupils' formulation of main ideas as the number of difficult words and the length of sentences in a selection. This does not mean that further work on the relationship between the semantic structure of materials and the ability of children to state main ideas should not be considered, but it does seem to suggest that the readability level of the materials could profitably be given foremost consideration in studies of this nature.

4. Finally, the fact that there is a paucity of research dealing with main idea comprehension abilities suggests that what has been done in this investigation should be viewed as an initial attempt in this area. Although the methodology of the study was carefully developed, it undoubtedly can be improved upon in the future. Furthermore, the impact of different cognitive styles and abilities upon performance with a main idea task must be examined before sound, individualized instructional programs can be devised.

III
STUDY II

Study II was undertaken to study the emergence of main idea statements as children in Grades 2 and 5 responded to a sentence by sentence presentation of a brief paragraph with an implicit main idea. The purpose was to examine the characteristics of these response patterns both within and across grade levels. The hope was that the descriptive information yielded by such an analysis of primary and intermediate children's approaches to the main idea task would lead to clarification of the cognitive processes involved.

Answers to three specific questions were sought:

1. Are there general patterns of responding as subjects attempt to formulate a main idea statement after reading each subsequent sentence in a paragraph?
2. Are there characteristic response patterns among subjects who are successful in formulating a high level (Category 6) main idea statement?
3. Do the response patterns of second and fifth graders differ?

METHOD

Subjects

Sixty second- and 60 fifth-grade pupils served as subjects. They were drawn from the same urban Wisconsin school system used in Study I, but three different schools, which were presumed to be representative of the city's socioeconomic areas, were used.

The population comprised all of the second and fifth graders in the three schools. As in Study I, teachers were asked to identify the pupils who, in their judgment, were able to read a sample test selection. From this group of children who presumably would have no difficulties with the mechanics of the reading task, 30 boys and 30 girls from each grade level were randomly chosen to serve as subjects for the study.

Materials

The directions and paragraphs used in Study I were modified or restricted for Study II in the following ways: (1) only paragraph B was used, the feeling being that sufficient data would be derived from a single paragraph; (2) to increase the response opportunities, two sentences—written according to the procedures established in Study I—were added to the paragraph, making a total of six; (3) the paragraph was Type I, first-grade level of difficulty, and Style A, requiring synthesis of the predicate only, to make the reading task as simple and straightforward as possible; (4) the six sentences were written on separate lines so that one sentence at a time could be exposed to the reader; and (5) the directions required the subject to give a main idea response after each successive sentence was presented. See Appendix D for the paragraph and Appendix E for specific directions used in Study II.

The response scale described in Study I was used to guide the scoring of the main idea statements.

Procedure

Directions. Except for the modifications indicated above, the directions for Study I were used.

Testing. Equal numbers of boys and girls within each grade read the Type I, Style A version of Paragraph B. Three graduate students who had participated in Study I were the examiners. One examiner worked in each school from which the subjects were drawn. The 120 subjects were individually tested in a room provided by the school. As in Study I, the testing session began with the warmup task and was followed by oral directions from the examiner. The examiner then held a card over the test paragraph so that only the first sentence was exposed. The subject was directed to read the sentence and tell the examiner what he thought "all the sentences together will say." After his response was

written down verbatim by the examiner on a prepared form (Appendix F), the second sentence was uncovered. This procedure was followed until all six sentences had been exposed; then the subject was asked to state what all the sentences together said.

Scoring Responses. The scoring method outlined in Study I was used in rating the six responses from each subject. In the present study, however, responses were not returned to the judges for rescaling when no two judges agreed. There was no single mean score for each subject as the intent was to examine the entire response pattern.

Design and Analysis of the Data

Identical material and directions were presented to each subject; the independent variable, then, was grade level, with equal numbers of subjects from the second and the fifth grades. Although equal numbers of boys and girls served as subjects, there was no attempt to examine the data by sex because the results of Study I indicated no systematic difference in boys' and girls' main idea responses. Thus there were, in effect, six dependent variables: the response ratings for the main idea statements evoked by the exposure of each successive sentence in the six-sentence experimental paragraph.

The basic intent in Study II was to gather descriptive information by examining the response patterns that appeared most frequently within and across grades and by examining the response patterns of subjects who at some point gave a response that was rated six, the highest rating on the scale. To organize the data for this purpose, the numerical ratings of each subjects' six responses were punched on a card, and cards were grouped by pattern through a process of sequential card sorting. This procedure was followed with each of the four judges' ratings. In addition, means and standard deviations for the rated values of each subsequent main idea statement within and across grades were computed for each judge.

RESULTS

Because the task of presenting four distinct sets of findings—the responses of each subject were categorized separately by each of four judges—seemed unwieldy, the decision was made to determine whether a single, most representative judge might be identified with a view toward reporting the results in terms of his ratings. Consequently, interjudge consensus was determined by examining the four ratings given to an arbitrarily chosen sentence. Interjudge correlations computed for these ratings are presented in Table 4. The ratings of Judge 3 were most highly correlated with the ratings of the other three judges; thus, the results of Study II are reported in terms of the ratings assigned by Judge 3. The results are presented in relation to the three general questions posed for this study.

Table 4

Intercorrelations of Judges' Ratings

	Judge			
	1	2	3	4
1	--	.64	.75	.61
2		--	.85	.64
3			--	.77
4				--

General Response Patterns

Although the expectation was that several distinct response patterns would emerge from the data, preliminary examination of the patterns seemed to reveal about as many patterns as individual subjects. Upon more careful examination, however, it was observed that much of the inconsistency appeared to be attributable to wide, and apparently random, variations in responses to the first two sentences within each pattern. In view of the fact that responses to the first two sentences necessarily had to be extremely tentative, almost random, main idea statements, the decision was made to ignore the responses to the first two sentences and to look carefully at the patterns that emerged when the responses to the last four sentences were examined.

The results of the analysis are summarized in Table 5, where the frequency of occurrence of each pattern that recurred among the second- and fifth-grade subjects' responses is given. Although the overlap among response patterns is limited, two general observations seem to be worthy of mention. First, the recurring patterns reveal a general tendency to perseverate. That is, many of the subjects continued to give identical responses or responses of the same quality over the last four sentences of the paragraph. This tendency in certain instances (e.g., Patterns 5, 6, and 10) appears to have precluded the attainment of a high scale score by the time the entire paragraph had been exposed. Second, the most frequently occurring patterns were Pattern 15, four consecutive ratings of 5, and Pattern 19, four consecutive ratings of 6. Subjects who exhibited these patterns had succeeded early in formulating highly acceptable main idea responses and, once having arrived at a high

level response, did no further shifting. Perseveration was obviously not a detriment in the case of Pattern 19.

Table 5

Recurring Response Patterns
Across Grades 2 and 5

Pattern	Frequency
1. 1111	3
2. 1115	2
3. 1116	2
4. 1166	2
5. 1222	2
6. 2222	5
7. 2333	2
8. 3116	2
9. 3311	2
10. 3333	6
11. 4444	2
12. 5355	2
13. 5535	2
14. 5553	2
15. 5555	22
16. 5556	2
17. 6111	2
18. 6665	2
19. 6666	12
Total	76

To sum up, a diversity of response patterns was apparent even among the 76 subjects who responded with recurring patterns. The process of formulating a main idea statement as additional information becomes available is highly idiosyncratic. The single generalization that emerges as the result of pattern analyses seems to be that individual subjects tend to perseverate at a response level that is attained quite early in the sequence; that is, after a hypothesis has been stated on the basis of limited information there is little tendency to change, even when more information becomes available.

Response Patterns with a Category 6 Rating

The frequencies of all response patterns in which at least one main idea statement was placed in Category 6 of the response rating scale are given in Table 6. All six sentences are included in order to provide maximum information about the response patterns of these subjects who were successful in formulating high level main idea statements. Only 40 subjects, or a third of the total number, ever gave a Category 6 main idea response; and in 13 instances the Category 6 response was not the final response. Furthermore, there was no consensual pattern of responses. The individual subjects apparently arrived at their high level responses in personal, idiosyncratic ways.

Table 6

Across Grades Frequency of Response Patterns
with One or More Category Six Ratings

Pattern	Frequency
1. 033116	1
2. 111116	1
3. 111166	1
4. 111666	1
5. 116666	1
6. 133366	1
7. 156111	1
8. 156665	1
9. 163163	1
10. 166665	1
11. 166666	2
12. 211116	1
13. 225165	1
14. 246666	1
15. 266111	1
16. 266336	1
17. 266666	1
18. 311166	1
19. 316333	1
20. 316666	1
21. 333116	1
22. 333631	1
23. 335666	1
24. 336666	2
25. 355665	1
26. 365113	1
27. 366666	1
28. 412611	1
29. 433161	1
30. 433556	1
31. 455556	1
32. 461331	1
33. 466346	1
34. 466666	2
35. 553666	1
36. 555556	1
37. 666666	1
Total	40

The data summarized in Table 6 were reexamined in order to determine (a) the point at which the Category 6 response first appeared in the pattern, and (b) the extent to which the Category 6 response, once started, was main-

tained in the remaining responses. To summarize this reexamination, the patterns were grouped into four types:

1. Category 6 response (C 6) given, but not as final response.
2. C 6 attained early, not held, but returned to as final response.
3. C 6 attained before last response and held through final response.
4. C 6 attained on last response only.

The results are given in Table 7, where four general observations can be made.

Table 7

Percent of Response Patterns with a Category 6 Response (C 6) in Four Descriptive Types (N = 40)

Type	Description	Percent (across grades)
1	C 6 response given, but not as final response	32.5
2	C 6 attained early, not held, but returned to as final response	5.0
3	C 6 attained before last response and held through final response	39.0
4	C 6 attained on last response only	23.5

1. A surprising number of subjects (32.5 percent in Type 1 on Table 7) apparently did not recognize the adequacy of their early Category 6 response and moved to less acceptable main idea statements as succeeding sentences of the paragraph were shown.

2. Few subjects (5 percent in Type 2) were erratic in giving high level main idea statements. It appears that when subjects completed the task with a C 6 response they either stated it early and maintained it (Type 3) or arrived at it only after reading the entire paragraph (Type 4).

3. A substantial number of subjects (39 percent in Type 3) attained a high level main idea statement early in the sequence and held it.

4. Subjects in Type 4 either were unable to arrive at a C 6 main idea statement any sooner than the last response or deliberately held back in their responding until all the information was available. Clarification of individual strategies might lead to implications for instruction.

The salient generalization on the basis of the Category 6 pattern analyses seems to be that even the subjects who are successful in giving a high level main idea response tackle the task in a rather idiosyncratic manner.

Response Patterns of Second and Fifth Graders

Frequencies of recurring response patterns for the last four responses are given by grade in Table 8. Despite the generally small number of repeated patterns within grade, two marked between-grade differences are demonstrated.

Table 8

Recurring Response Patterns by Grade

Pattern	Frequency	
	Grade 2	Grade 5
1. 1111	3	0
2. 1115	2	0
3. 1116	2	0
4. 1166	2	0
5. 1222	2	0
6. 2222	3	2
7. 2333	2	0
8. 3116	2	0
9. 3311	1	1
10. 3333	3	3
11. 4444	1	1
12. 5355	2	0
13. 5535	2	0
14. 5553	1	1
15. 5555	6	16
16. 5556	1	1
17. 6111	0	2
18. 6665	0	2
19. 6666	1	11
Totals	36	40

1. The preponderance of the low ratings occurred in the second-grade patterns, while fifth graders' responses generally received higher ratings. This finding is, of course, as expected and it is consistent with the results of Study I.

2. There were fewer clusters of consensual response patterns among the second graders. That is, the second-grade subjects were fairly evenly distributed across the nineteen response patterns; whereas, the majority of the fifth graders clustered around two high level patterns, 15 and 19.

Returning to a consideration of all 120 subjects, the mean ratings given to each of the six sentences are given for Grades 2 and 5, respectively, in Figures 1 and 2. Two salient generali-

zations based upon both figures are that (a) the second graders' mean ratings are lower than the fifth graders' and (b) the second graders' performance across sentences is erratic, while the plot of the fifth graders' performance shows positive acceleration across trials in the manner of a classic learning curve.

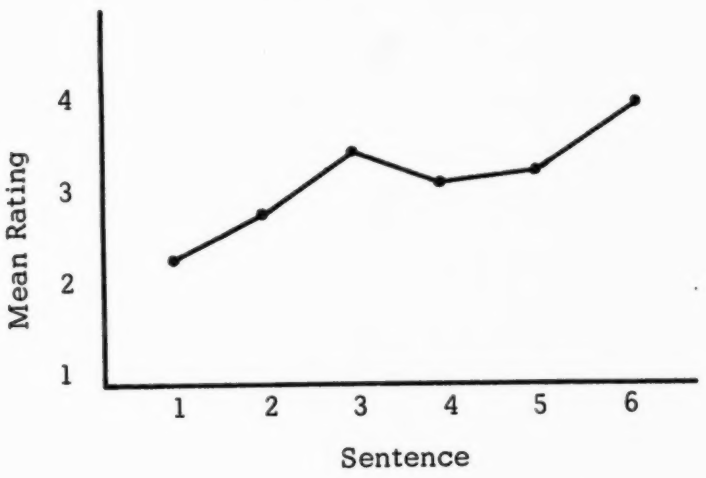

Figure 1. Mean Rating Given to Each Response: Second Grade

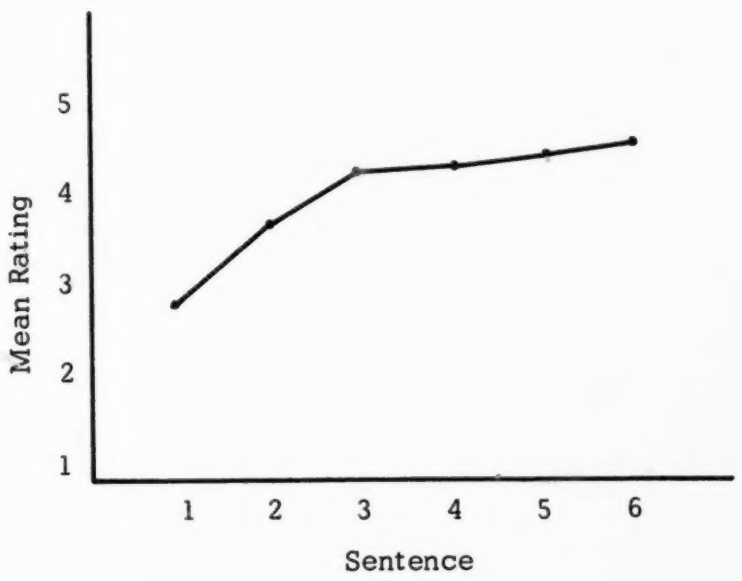

Figure 2. Mean Rating Given to Each Response: Fifth Grade

Frequencies of patterns in which there was at least one Category 6 response are summarized by grade level in Table 9. Fifth graders had about twice as many patterns with Category 6 ratings as second graders. When the patterns with Category 6 responses were grouped according to time of emergence and maintenance of Category 6 responses, distinct differences between grade levels became apparent. The groupings are summarized in Table 10, which reveals two major between-grade differences. First, while just under half of the second-grade patterns contained a Category 6 rating only on the last response, this was true of only a very

Table 9

Within Grade Frequency of Response Patterns with One or More Category Six Ratings

Grade 2

	Pattern	Frequency
1.	033116	1
2.	111116	1
3.	111166	1
4.	211116	1
5.	225165	1
6.	311166	1
7.	316333	1
8.	333116	1
9.	412611	1
10.	433161	1
11.	433556	1
12.	455556	1
13.	466346	1
14.	466666	1
	Total	14

Grade 5

	Pattern	Frequency
15.	111666	1
16.	116666	1
17.	133366	1
18.	156111	1
19.	156665	1
20.	163163	1
21.	166665	1
22.	166666	2
23.	246666	1
24.	266111	1
25.	266336	1
26.	266666	1
27.	316666	1
28.	333631	1
29.	335666	1
30.	336666	2
31.	355665	1
32.	365113	1
33.	366666	1
34.	461331	1
35.	466666	1
36.	553666	1
37.	555556	1
38.	666666	1
	Total	26

Table 10

Percent of Response Patterns with a Category 6 Response (C 6) in Four Descriptive Types by Grade Level

Type	Description	Percent	
		Grade 2	Grade 5
1	C 6 response given, but not as final response	29	35
2	C 6 attained early, not held, but returned to as final response	7	4
3	C 6 attained before last response and held through final response	21	57
4	C 6 attained on last response only	43	4

small portion of fifth-grade patterns. The fifth graders, then, generally arrived at a Category 6 response earlier in the sequence. Second—and this is in line with the first generalization—more than half of the fifth graders arrived at a Category 6 response early in the sequence and maintained it, whereas only about one-fifth of the second graders exhibited such a pattern.

DISCUSSION

The limitations pointed out in the discussion of Study I also hold for the present discussion.

With the presentation sequence employed in Study II, the subjects tended to respond more or less at random to the first two sentences. In the absence of contextual or other relevant cues, random responding to extremely limited information would, of course, be expected. Then, as more information becomes available, the expectation would be for increasingly more adequate main idea statements to occur. In general such a trend was observed, at least among fifth graders, but the number of subjects who arrived at the highest level main idea statements was not great. One implication appears to be that children might profit from being encouraged to formulate a hypothesis about the main idea of a reading selection very early in the reading sequence and to continue to revise the hypothesis as long as more relevant information is forthcoming. In view of the perseveration tendencies demonstrated, emphasis upon the latter appears to be particularly desirable.

Considering the entire response patterns of the present subjects, consensual response patterns were not demonstrated. This lack can be attributed largely to the random responses to the first two sentences. However, when the patterns were limited to the last four responses given, several distinct characteristics were noted. Relatively few of the subjects (i.e., two-fifths of the fifth graders and one-fifth of the second graders) were successful in formulating a high level (Category 6) main idea statement; and among these subjects there were no predominant response patterns. A surprising observation was that a number of children who did arrive at a Category 6 response at some point before the end of the sequence changed it to an inferior response. The suggestion seems to be that children may have no clear conception of what a main idea ought to be. If this is so, then teachers need to help them to develop criteria for deciding (a) what a good main idea statement is, (b) how it is recognized, and (c) how it is formulated.

Despite the diversity of response patterns among children who managed to formulate a Category 6 main idea statement while reading a paragraph, the patterns were categorized according to the point at which the statement was made and the degree to which it was maintained for the remainder of the task. The four descriptive categories devised for this purpose may be useful in permitting teachers to classify pupils as to their need for greater accuracy, efficiency, and/or confidence in reading for the main idea.

The more erratic and less successful attempts of second graders to formulate main idea statements may be attributable to either or both of the following: (a) general developmental lacks that preclude high level conceptualizing; and (b) classroom procedures in the early grades that do not provide as much guidance in reading for main ideas as in the upper grades. In either case, systematic teaching designed to channel pupils' energies as they tackle the task of formulating a main idea statement would probably yield worthwhile results.

APPENDIX A
PARAGRAPHS, STUDY I

PARAGRAPH A, STYLE A

FIRST GRADE

Cats help the farmer keep mice from his corn.
A horse helps the farmer work.
Cows give milk to the farmer.
A dog helps the farmer watch the barnyard.

SECOND GRADE

Cats help the farmer keep his corn safe from hungry mice.
A horse helps the farmer plow in the spring.
Cows give milk to the farmer.
A dog helps the farmer watch over the barnyard.

THIRD GRADE

Cats help the farmer keep his corn safe from greedy and hungry mice.
A horse helps the farmer plow his fields in the springtime.
Cows give milk to the farmer and his large family.
A dog helps the farmer guard the whole barnyard when it is night.

FOURTH GRADE

Cats help the farmer keep his corn safe from greedy and hungry mice.
A horse helps the farmer plow his wheat fields when spring comes.
Cows give milk to the farmer and his large family of six.
A dog helps the farmer guard the whole barnyard when it is night.

FIFTH GRADE

Cats help the farmer keep his corn safe whenever greedy and hungry mice try stealing grain.
A horse helps the farmer plow his wheat fields when spring comes.
Cows give milk to the farmer and his large family of six.
A dog helps the farmer guard the entire barnyard when it is night and people are asleep.

SIXTH GRADE

Cats help the farmer keep his valuable corn safe whenever greedy, hungry mice try stealing grain.
A horse helps the farmer plow his wheat fields when spring comes.
Cows give very tasty milk when the farmer and his large family of six need it.
A dog helps the farmer guard the entire barnyard particularly carefully when it is night and people are asleep.

PARAGRAPH A, STYLE B

FIRST GRADE

Some animals help the farmer keep mice from his corn.
Others help the farmer work.
Many animals give milk to the farmer.
Some animals help the farmer watch the barnyard.

SECOND GRADE

Some animals help the farmer keep corn safe from hungry mice.
Others help the farmer plow in the spring.
Many animals give milk to the farmer.
Some animals help the farmer watch over the barnyard.

THIRD GRADE

Some animals help the farmer keep his corn safe from greedy and hungry mice.

GPO 809-283-4

Others help the farmer plow his fields in the springtime.
Many animals give milk to the farmer and his large family.
Some animals help the farmer guard the barnyard when it is night.

FOURTH GRADE

Some animals help the farmer keep his corn safe from greedy and hungry mice.
Others help the farmer plow his wheat fields when spring comes.
Many animals give milk to the farmer and his large family of six.
Some animals help the farmer guard the barnyard when it is night.

FIFTH GRADE

Some animals help the farmer keep his corn safe whenever greedy, hungry mice try stealing grain.
Others help the farmer plow his wheat fields when spring comes.
Many animals give milk to the farmer and his large family of six.
Some animals help the farmer guard the entire barnyard when it is night and people are asleep.

SIXTH GRADE

Some animals help the farmer keep his valuable corn safe whenever greedy, hungry mice try stealing grain.
Others help the farmer plow his wheat fields when spring comes.
Many animals give tasty milk when the farmer and his large family of six need it.
Some animals help the farmer guard the entire barnyard particularly carefully when it is night and people are asleep.

PARAGRAPH B, STYLE A

FIRST GRADE

Robins may build nests under a roof.
Bluejays like nests in trees.
Ducks make nests in tall grass.
Woodpeckers make nests inside wood fence posts.

SECOND GRADE

Robins may build nests under the roofs of houses and barns.
Bluejays like their nests in trees.
Ducks make nests in the tall grass near other duck nests.
Woodpeckers make nests inside old wood fence posts.

THIRD GRADE

Robins may build their nests under the roofs of houses and barns.
Bluejays like their nests in trees that have many big branches.
Ducks, however, carefully make their nests in the wild rice, high weeds, or tall marsh grass near other duck nests.
Woodpeckers sometimes make nests inside old wood fence posts.

FOURTH GRADE

Robins may build their nests under the roofs of houses, garages, and barns.
Bluejays like their nests in broad trees that have big branches.
Ducks, however, very carefully make their nests in the wild rice, high weeds, or tall grass near other duck nests.
Woodpeckers sometimes make nests that are quite soft and comfortable inside old wooden fence posts.

FIFTH GRADE

Robins may build their nests under the roofs of houses, garages, and barns.
Bluejays like their nests in broad trees that have big branches.
Ducks, however, carefully make nests in wild rice, high weeds, or tall marsh grass that may contain many duck and other wild life homes.
Woodpeckers sometimes make nests that are quite soft and comfortable inside old wooden fence posts.

SIXTH GRADE

Robins may build their nests under house, garage, and barn roofs where they overhang the building.
Bluejays like their nests in leafy trees that have big branches.
Ducks, however, carefully make nests in the wild rice, high weeds, or tall marsh grass that may contain many duck and other wild life homes.
Woodpeckers sometimes make nests that are quite soft and comfortable inside old wooden fence posts.

PARAGRAPH B, STYLE B

FIRST GRADE

Some birds build nests under the roof.
Many birds like nests in trees.
Some even make nests in tall grass.
A few birds make nests inside wood fence posts.

SECOND GRADE

Some birds build nests under roofs of houses and garages and barns.
Many birds like their nests in trees.
Some even make nests in tall grass near other bird nests.
A few birds make nests inside wooden fence posts.

THIRD GRADE

Some birds build their nests under the roofs of houses and garages and barns.
Many birds like nests in trees that have big branches.
Some, however, carefully make their nests in the wild rice, high weeds, or tall marsh grass near other bird nests.
A few birds make nests inside old wooden fence posts.

FOURTH GRADE

Some birds build their nests under the roofs of houses, garages, and barns.
Many birds like nests in broad trees that have big branches.
Some, however, very carefully make their nests in the wild rice, high weeds, or tall grass near other bird nests.
A few birds make nests that are soft and comfortable inside old wooden fence posts.

FIFTH GRADE

Some birds build their nests under the roofs of houses, garages, and barns.
Many birds like nests in broad trees that have big branches.
Some, however, carefully make nests in wild rice, high weeds, or tall marsh grass that may contain many bird and other wild life homes.
A few birds make nests that are soft and comfortable inside old wooden fence posts.

SIXTH GRADE

Some birds build their nests under house, garage, and barn roofs where they overhang the building.
Many birds like nests in leafy trees that have big branches.
Some, however, carefully make nests in the wild rice, high weeds, or tall marsh grass that may contain many bird and other wild life homes.
A few birds make nests that are soft and comfortable inside old wooden fence posts.

PARAGRAPH C, STYLE A

FIRST GRADE

Lions use claws to hold their food.
Bears have claws for digging.
Cats' claws help them climb trees quickly.
Tigers use strong claws for killing.

SECOND GRADE

Lions use claws to hold their food.
Bears have long claws for digging.
Cats' claws help them to climb tall trees in a hurry.
Tigers use strong claws for fighting in the woods.

THIRD GRADE

Lions use claws when they hold and eat their freshly caught food.
Bears have long claws for digging up many different roots and bugs.
Cats' claws help them to climb the most difficult trees in a hurry.
Tigers use their strong claws for fighting their many enemies in the woods.

FOURTH GRADE

Lions use claws when they hold and eat their freshly caught food.
Bears have long claws for digging up different kinds of roots and insects.
Cats' claws help them to climb the most difficult trees in a hurry.
Tigers use their strong claws when they attack and fight their jungle enemies.

FIFTH GRADE

Lions use claws when they hold and eat their freshly caught food.
Bears have long claws that help them to dig up various roots and insects.
Cats' claws help them to climb even the most difficult trees in a hurry.
Tigers use their strong, powerful claws when they attack, fight, and frequently kill their jungle enemies.

SIXTH GRADE

Lions use claws when they grasp and eat their freshly caught food.
Bears have long claws that help them to dig up and tear apart various roots and insects.
Cats' claws help them if they are forced to climb even the most challenging trees very quickly.
Tigers use their strong, powerful claws when they attack, fight, and frequently kill their jungle enemies.

PARAGRAPH C, STYLE B

FIRST GRADE

Some animals use claws to hold food.
A few have claws for digging.
Some animals' claws help them climb trees.
Many animals use claws for killing.

SECOND GRADE

Some animals use claws to hold food.
A few have claws for digging.
Some animals' claws help them climb tall trees in a hurry.
Many animals use claws for fighting in the woods.

THIRD GRADE

Some animals use claws when they hold and eat their freshly caught food.
A few have long claws for digging up different roots and bugs.
Some animals' claws help them climb the most difficult trees in a hurry.
Many animals use claws for fighting their many enemies in the woods.

FOURTH GRADE

Some animals use claws when they hold and eat freshly caught food.
A few have long claws for digging up different kinds of roots and insects.
Some animals' claws help them climb the most difficult trees in a hurry.
Many animals use claws when they attack and fight their jungle enemies.

FIFTH GRADE

Some animals use claws when they hold and eat freshly caught food.
A few have long claws that help them dig up various roots and insects.
Some animals' claws help them climb even the most difficult trees in a hurry.
Many animals use their powerful claws when they attack, fight, and frequently kill their jungle enemies.

SIXTH GRADE

Some animals use claws when they grasp and eat freshly caught food.
A few have long claws that help them dig up and tear apart various roots and insects.
Some animals' claws help them if they are forced to climb even the most challenging trees quickly.
Many animals use their powerful claws when they attack, fight, and frequently kill their jungle enemies.

APPENDIX B
DIRECTIONS, STUDY I

Warmup:

Hello, there. My name is _____.
What's your name? Good. _____,
did you notice that I used a sentence to tell you my name? /Read and fill in name./ You said your name was _____. Can you make up a sentence just like mine to tell me your name? Good. I have your sentence written here too. /Read and fill in name./
Suppose I say, "My teacher's name is Mr. Brown." /Show sentence as you say this./
Can you make up a sentence like mine to tell me your teacher's name?
Very good. I'll write that down in here. /Write name in./ Now we have four sentences to read. Will you read each one back to me?

Task:

Very good. Now I have some more sentences for you to read, but we're going to do something a little different. This time, as you read, think about what all the sentences together say. When you finish reading, make up just one sentence in your own words that says what all the sentences tell you. You can read this silently — to yourself. If you do not know any of the words, ask me and I will tell you. /Give task materials to S. If S reads aloud, allow him to do so./

Posttask:

What do all of these sentences together tell you? You may look back at the page if you wish. /Note response./
/Pause 10 seconds. If S does not answer, repeat question./

Additional question:

/If S gives a subject referent that is not clear (They, Some, etc.) point to the word in the written response (e.g. "They") and ask:/ What do you mean by _____? /Note response./

Second and third tasks:

Now let's do the same thing on another page. Would you read this and think about what all the sentences say? /Give task materials to S./
What do all of these sentences together tell you? /Note response./
/Pause 10 seconds; if S does not answer, repeat question./
/If S gives a subject referent that is not clear, point to the word in the written response and ask:/
What do you mean by _____? /Note response./

APPENDIX C

ANSWER FORM, STUDY I

Name _____ Examiner _____

School _____ Task _____

Grade _____

Sex _____

If S gives a subject referent that is not clear (they, some, etc.), point to the word in the written sentence (e.g. "they") and ask: "What do you mean by 'they'?"

Task _____

"What do you mean by 'they'?"

Task _____

APPENDIX D
PARAGRAPH, STUDY II

Some birds build nests under the roof.

Many birds like nests in trees.

Some even make nests in tall grass.

A few birds make nests inside wood fence posts.

Other birds build nests in bushes.

Many birds build nests in bird houses.

APPENDIX E
DIRECTIONS, STUDY II

Warmup:

Hello, there. My name is _____.
What's your name? Good. _____,
did you notice that I used a sentence to tell you my name? READ AND FILL IN NAME.
You said your name was _____. Can you make up a sentence just like mine to tell me your name? Good. I have your sentence written here too. READ AND FILL IN NAME.
Suppose I say, "My teacher's name is Mr. Brown." SHOW SENTENCE AS YOU SAY THIS.
Can you make up a sentence like mine to tell me your teacher's name? Very good. I'll write that down in here. WRITE NAME IN.
Now we have four sentences to read. Will you read each one back to me?

Task:

Reading is like solving a puzzle. First we find out what one sentence tells us. As we read more sentences, we try to figure out what all the sentences together tell us.
Today I want you to try to solve a reading puzzle. We will use a group of 6 short sentences, but to make this a puzzle I will show you just one sentence at a time. Like this. / DEMONSTRATE ON PRETASK / After each sentence I want you to tell me what you think all the sentences together will say even before you see all the sentences.
As you read more sentences you may or may not change your ideas. But that isn't important. It is important to try to figure out what all the sentences together will say even before you see all the sentences. Here is the first sentence for you to read. You can read it silently — to yourself. If you do not know any of the words, ask me and I will tell you.

--- S READS SENTENCE ---

Now that you've read this, make up a sentence in your own words to tell me what you think all the sentences together will tell you.

****All right. Here is another sentence to read.

--- S READS SENTENCE ---

USE FOR ALL BUT LAST SENTENCE:
Now that you've read these, make up a sentence in your own words to tell me what you think all the sentences together will tell you.

[This last paragraph would be used after each new reading. For the last sentence, change wording to "all the sentences together tell you."]

APPENDIX F

ANSWER FORM, STUDY II

Name _____ Examiner _____

School _____

Grade and Sex _____

Standard task:

What do you think all the sentences together will say? Tell me in a sentence in your own words. /Note response./ Repeat question after 10 seconds if S does not answer./ Confirm each response with neutral "all right."/

[Omit "will" for sentence 6./ Omit "Tell me in a sentence..." if S gives sentence response./ If S gives a subject referent that is not clear (they, some, etc.) point to the word in the written answer (e.g., "they") and ask: "What do you mean by 'they'?"]

Responses:

1

1–2

1–3

1–4

1–5

1–6

GPO 809–283–3

REFERENCES

Alderman, G. H. Improving comprehension in silent reading. Journal of Educational Research, January, 1926, 13, 11–21.

Broening, A. M. Abilities which contribute to effective reading. Education, 1941, 62, 11–17.

Dale, E., & Chall, J. A formula for predicting readability. Educational Research Bulletin, January, 1948, 27, 11–20, 28.

Keneally, K. G. A study of the relative order of difficulty of several types of study skills. Master's thesis, Boston University, 1939.

Macdonald, J. B., Harris, T. L., & Rarick, G. L. An experimental study of the group versus the one-to-one instructional relationship in first grade basal reading program. University of Wisconsin, School of Education, 1966.

McCullough, C. Response of elementary school children to common types of reading comprehension questions. Journal of Educational Research, September, 1957, 51, 65–70.

Spache, G. A new readability formula for primary grade reading materials. Elementary School Journal, March, 1953, 53, 410–13.

Stone, C. R. Measuring difficulty of primary reading material: A constructive criticism of Spache's measure. Elementary School Journal, October, 1957, 57, 36–41.

Thorndike, E. L. Reading as reasoning: A study of mistakes in paragraph reading. Journal of Educational Research, June, 1917, 8, 323–32.

Woody, C. Measurement of a new phase of reading. Journal of Educational Research, November, 1923, 8, 315–26.

GPO 809–283–2